

L Number	Hits	Search Text	DB	Time stamp
1	8	(print or printed or printing) near3 (superabsorbent or super-absorbent or superabsorber or super-absorber)	USPAT; US-PGPUB	2003/09/11 17:19
2	29	"6019457"	USPAT; US-PGPUB	2003/09/11 16:51
3	3	((("6019457") or ("6024438") or ("5875967")),PN.	USPAT; US-PGPUB	2003/09/11 16:52
4	2	(print or printed or printing) near3 (superabsorbent or super-absorbent or superabsorber or super-absorber)	EPO; JPO; DERWENT	2003/09/11 17:12
5	0	(screen-print or screen-printed or screen-printing) near3 (superabsorbent or super-absorbent or superabsorber or super-absorber)	EPO; JPO; DERWENT	2003/09/11 17:07
6	30	(print or printed or printing) with (superabsorbent or super-absorbent or superabsorber or super-absorber)	USPAT; US-PGPUB	2003/09/11 17:04
7	22	((print or printed or printing) with (superabsorbent or super-absorbent or superabsorber or super-absorber)) not ((print or printed or printing) near3 (superabsorbent or super-absorbent or superabsorber or super-absorber))	USPAT; US-PGPUB	2003/09/11 17:03
8	12753	absorbent.ti,ab.	USPAT; US-PGPUB	2003/09/11 17:03
9	26808	(print or printed or printing) near3 (spray or sprayed or spraying or coat\$3)	USPAT; US-PGPUB	2003/09/11 17:05
10	641	absorbent.ti,ab. and ((print or printed or printing) near3 (spray or sprayed or spraying or coat\$3))	USPAT; US-PGPUB	2003/09/11 17:05
11	20791	(print or printed or printing) near2 (spray or sprayed or spraying or coat\$3)	USPAT; US-PGPUB	2003/09/11 17:12
12	575	absorbent.ti,ab. and ((print or printed or printing) near2 (spray or sprayed or spraying or coat\$3))	USPAT; US-PGPUB	2003/09/11 17:05
13	0	((print or printed or printing) near3 (spray or sprayed or spraying or coat\$3)) same (superabsorbent or super-absorbent or superabsorber or super-absorber)	EPO; JPO; DERWENT	2003/09/11 17:07
14	22	((print or printed or printing) near3 (spray or sprayed or spraying or coat\$3)) same (superabsorbent or super-absorbent or superabsorber or super-absorber)	USPAT; US-PGPUB	2003/09/11 17:08
15	13137	(print or printed or printing) near2 (spray or sprayed or spraying or coat\$3)	EPO; JPO; DERWENT	2003/09/11 17:12
16	0	((print or printed or printing) near2 (spray or sprayed or spraying or coat\$3)) same (superabsorbent or super-absorbent or superabsorber or super-absorber)	EPO; JPO; DERWENT	2003/09/11 17:13
17	0	((print or printed or printing) near2 (spray or sprayed or spraying or coat\$3)) and (superabsorbent or super-absorbent or superabsorber or super-absorber)	EPO; JPO; DERWENT	2003/09/11 17:13
24	0	(print or printed or printing) and 5248524.pn.	USPAT; US-PGPUB	2003/09/11 17:19

DOCUMENT-IDENTIFIER: US 20030111163 A1

TITLE: Process for adding superabsorbent to a pre-formed  
fibrous web using two polymer precursor streams

----- KWIC -----

Detail Description Paragraph - DETX (7):

[0038] The superabsorbent polymer precursor compositions may be applied to the fibrous web using a wide variety of different processes. Suitable processes include spraying, where the two precursor compositions are sprayed using different nozzles and/or at different times; contact printing or embossing, using separate printing or embossing steps; non-contact printing, using separate printing nozzles and/or steps; dipping, where the fibrous web is first dipped into a solution containing the first precursor composition and later dipped into a solution containing the second precursor composition; and the like. Suitable non-contact **printing processes for applying the superabsorbent** polymer precursor compositions are disclosed in U.S. Pat. No. 6,024,438 to Koike et al.; U.S. Pat. No. 6,019,457 to Silverbrook; and U.S. Pat. No. 5,875,967 to Ruth III; which are incorporated by reference. Desirably, the superabsorbent polymer precursor compositions are applied as droplets or microdroplets, having a diameter of about 10-1000 microns, desirably about 50-500 microns. The microdroplets may have a viscosity of about 5-1000 centipoise, suitably about 10-500 centipoise, desirably about 20-100 centipoise at the application temperature (typically room temperature).

US-PAT-NO: 4958385

DOCUMENT-IDENTIFIER: US 4958385 A

TITLE: Hair dressing headband

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Detailed Description Text - DETX (12):

During the manufacturing process, the barrier layer is formed from a fluid impervious film to provide a strip having a sufficient width to define an absorbent region and a sealing region. The absorbent region is that region of the inside of the headband 13 which will be contacted by the fibrous stock after the product is manufactured. Using a knife over roll coater, the adhesive 27 can be printed on the inside of the strip. Once the adhesive layer 27 has been applied, the superabsorbent 33 is applied, preferably by gravure **printing a particular pattern of superabsorbent** particulate or crystals. When the **superabsorbent is particulate in nature and when it is printed** on the adhesive, a particular advantages is obtained by providing sufficient space for the superabsorbent crystals to expand and thereby maximize the amount of fluid which can be absorbed by the device. The particulate **superabsorbent can be printed** or otherwise placed on the adhesive in a random pattern or it may have a predetermined pattern to ensure ideal spacing between the crystals.

Claims Text - CLTX (14):

8. The device of claim 7, wherein said particulate **superabsorbent is printed** on said adhesive.

Claims Text - CLTX (27):

a layer of particulate **superabsorbent material printed** on said adhesive;

US-PAT-NO: 6417425

DOCUMENT-IDENTIFIER: US 6417425 B1

TITLE: Absorbent article and process for preparing an absorbent article

----- KWIC -----

US Patent No. - PN (1):  
6417425

Brief Summary Text - BSTX (58):

Although many of the conventional teachings in this area prefer to avoid the use of small particle size superabsorbent polymer particles, we have found that these particles work quite well in the present invention. Superabsorbent polymer particles having particle sizes in the range of from 10 to 300 microns tend to work well with the spray equipment, produce sprayable blends having manageable viscosities, and result in absorbent articles having discrete superabsorbent particles attached to the fibrous web.

Brief Summary Text - BSTX (70):

In addition to the superabsorbent polymer particles, superabsorbent-forming monomer and one or more initiators, the sprayable blend contains water. Generally, the sprayable blend contains sufficient water to render the Brookfield viscosity of the sprayable blend in the range of from 20 to 400 centipoises, more preferably from 30 to 150 centipoises, most preferably from 40 to 100 centipoises. The level of water in the sprayable blend is generally in the range of from 40 to 80 percent by weight, more preferably from 50 to 60 percent by weight of the sprayable blend.

Brief Summary Text - BSTX (74):

In the process of the present invention, a sprayable blend is prepared by combining superabsorbent forming monomer, super absorbent polymer particles, water and initiator. Although the order of combining these materials is not particularly important, for safety reasons it is preferred to add the initiator

last. The amounts of the individual components of the blend are set forth above and are generally selected so that the Brookfield viscosity of the sprayable blend is in the range of from 20 to 400 centipoises, more preferably from 30 to 150 centipoises, most preferably from 40 to 100 centipoises. Many factors will influence the viscosity of the sprayable blend, including the chemical nature and size of the superabsorbent polymer particle, the extent of neutralization of the superabsorbent polymer particles, the extent of neutralization of the one or more superabsorbent forming monomers, and the concentration of the superabsorbent polymer particles.

Detailed Description Text - DETX (5):

The viscosity measurements reported in Table 1 below were obtained using a Brookfield Digital Viscometer Model DV-II, according to the manufacturer's directions, on 400 milliliter samples of the sprayable blends in a 600 milliliter Griffin beaker using an 02 spindle at 20 revolutions per minute. The "time" shown in Table 1, below, is the amount of time, in minutes, between adding the collected superabsorbent polymer particles and measuring the viscosity. The "weight of SAP" reported in Table 1, below, is the weight, in grams, of collected superabsorbent polymer particles, unless otherwise noted, in the sprayable blend.

Detailed Description Paragraph Table - DETL (1):

TABLE 1 Weight Viscosity (cps) Example of SAP Time = 1 Time = 15 Time = 30 Time = 60 1 (comparative) 0 20 18 18 16 2 15 20 22 22 22 3 30 30 30 30 30 4 45 46 54 52 52 5 60 136 140 146 146 6 (comparative) 46\* 16 16 16 16 \*PVP instead of collected superabsorbent polymer particles

DOCUMENT-IDENTIFIER: US 20010053643 A1

TITLE: Medical linen with regionally imprinted performance  
areas

----- KWIC -----

Detail Description Paragraph - DETX (13):

[0040] It may be desired, especially in the instance of drapes to have an area with enhanced absorption. Currently this is provided by laminating an absorbent layer of material to the fabric of the drape. Such material is capable of absorbing body fluid, such as blood, to create a relatively dry area where a surgeon may more easily work. Instead, according to the present invention, it is possible to **print** a layer of absorbent material, such as an acrylic acid based **superabsorbent**, either as a finished polymer or as a water base suspension of the precursor compounds, to a localized region to provide enhanced fluid absorptive capability. Preferably, this would be provided adjacent a fenestration through which surgical procedure is to be performed. Employing any of the well known acid based superabsorbent materials, such a coating would be capable of absorbing a greater volume of liquid than conventional laminated fabric materials. Based upon the present disclosure, other printable absorbent materials will be apparent to those of skill in the art.

US-PAT-NO: 6235659

DOCUMENT-IDENTIFIER: US 6235659 B1

TITLE: Medical linen with regionally imprinted performance areas

----- KWIC -----

Detailed Description Text - DETX (13):

It may be desired, especially in the instance of drapes to have an area with enhanced absorption. Currently this is provided by laminating an absorbent layer of material to the fabric of the drape. Such material is capable of absorbing body fluid, such as blood, to create a relatively dry area where a surgeon may more easily work. Instead, according to the present invention, it is possible to **print** a layer of absorbent material, such as an acrylic acid based **superabsorbent**, either as a finished polymer or as a water base suspension of the precursor compounds, to a localized region to provide enhanced fluid absorptive capability. Preferably, this would be provided adjacent a fenestration through which surgical procedure is to be performed. Employing any of the well known acid based superabsorbent materials, such a coating would be capable of absorbing a greater volume of liquid than conventional laminated fabric materials. Based upon the present disclosure, other printable absorbent materials will be apparent to those of skill in the art.

US-PAT-NO: 5506035

DOCUMENT-IDENTIFIER: US 5506035 A

TITLE: Superabsorbent polymer foam

----- KWIC -----

Detailed Description Text - DETX (76):

Where a wicking substrate is used, it is particularly desirable to print the stable dispersion in a discontinuous pattern on the wicking substrate in order to form an absorbent member possessing both the capillary absorptive properties of the wicking material and the osmotic absorptive properties of the resultant discontinuous pattern of superabsorbent foam. To form the discontinuous pattern, it is generally desirable to use a stable dispersion having a sufficiently high viscosity such that wicking of the dispersion into the substrate does not occur to a substantial extent. In this way, the wicking properties of the substrate are substantially maintained. In addition, the higher viscosity may prevent or minimize partitioning of the solvent and the reactants. The viscosity can be controlled by any of the methods discussed herein in reference to forming the stable dispersion, e.g., through the use of a viscosity control agent and/or multi-step reaction process. In addition, it is generally desirable to initiate expansion and reaction to form the foam within a short time, preferably immediately, after printing of the stable dispersion onto the substrate. For example, polymerization of the monomer to form a linear polymer may be initiated by, e.g., subjecting the printed dispersion to ultraviolet radiation. Expansion and reaction of the linear monomer, any remaining monomer, and the internal crosslinking agent in the printed dispersion is then caused, e.g., by subjecting the printed dispersion to heat. The ultraviolet radiation used to initiate polymerization of the monomer may be sufficient where the blowing agent has a sufficiently low boiling point and the reaction mixture has a sufficiently low activation temperature. If necessary, additional sources of heat may be used, e.g., infrared radiation.

Detailed Description Text - DETX (166):

The absorbent core preferably comprises a carrier web of fiber material and the superabsorbent polymer foam of the present invention. Such cores can be



prepared by any process or technique which provides a fibrous carrier web and the foam. In a preferred embodiment, the absorbent core is formed by air-laying a substantially dry mixture of fibers, densifying the resultant web if desired or necessary, and then forming the superabsorbent foam on the web. The air-laid web will preferably comprise substantially unbonded fibers and will preferably have a moisture content of 10% or less. The foam can be formed by **printing** the stabilized dispersion on the web as desired and then expanding and reacting the dispersion so as to form the **superabsorbent** foam on the web. The foam can be present on the web in particular areas of the web and/or in a pattern so as to provide absorption properties designed for the intended use of the diaper 20. For example, the web having foam formed thereon can be designed according to the absorption requirements for boy and girl wearers. The web having the superabsorbent foam formed thereon can then be incorporated into the diaper 20 by any conventional method.

US-PAT-NO: 6610173

DOCUMENT-IDENTIFIER: US 6610173 B1

TITLE: Three-dimensional tissue and methods for making the same

----- KWIC -----

Detailed Description Text - DETX (108):

Elevated portions of the web on either side of the web (tops of domes or the pattern densified network) can be selectively treated with chemical agents such as starch, surfactants, elastomers, sizing material, waxes, hydrophobic matter, **superabsorbent** material or **superabsorbent** precursors, as described in WO 95/13780 by D. Van Phan and P. D. Trokhan, published May 26, 1995, or according to the various surface treatments disclosed in U.S. Pat. No. 5,431,643, issued to Ouellette et al., Jul. 11, 1995, and the like to obtain improved physical properties or other properties in the product. Means such as gravure **printing, size press coating** of a liquid, and the like can be used. In one embodiment, for example, a latex emulsion or an adhesive material such as polyvinyl alcohol is selectively printed by rotogravure printing or other means onto the most elevated portions of the web. The web may then be dried, or dried and creped off a Yankee dryer, or joined to another web.

5,547,747

US-PAT-NO: 5506035

DOCUMENT-IDENTIFIER: US 5506035 A

TITLE: Superabsorbent polymer foam

----- KWIC -----

Detailed Description Text - DETX (70):

The **superabsorbent** polymer foams of the present invention are useful in free form, including particulate (includes granules, chunks, and the like), sheet or other three-dimensional forms. A particulate foam material can be obtained from a bulk sample of foam material by any suitable method, e.g., chopping or grinding. However, in any such process it will generally be desired to make efforts to substantially preserve the morphology (e.g., surface area to mass ratio) of the foam material as originally formed. To form a free (i.e., unsupported) foam sheet, the stable dispersion is applied to a temporary substrate followed by expansion of the blowing agent and reaction of the internal crosslinking agent with the monomer to obtain the substantially water-insoluble, polymer foam. The foam is then readily removed from the temporary substrate. Temporary substrates include any materials known for such purpose, e.g., TEFLON.RTM. sheets, MYLAR.RTM. sheets, and release-coated metal sheets. The stable dispersion may be applied to the substrate by any conventional method of preparing films or **prints, for example, knife-coating,** spray-coating, reverse-roll coating, gravure-coating, cold extrusion coating or casting, and the like. The stable dispersion may be applied to the substrate to obtain a foam product in a desired shape. Alternatively, the foam product may be cut to a desired form.